

CLAIMS

What is claimed is:

1. A parking brake actuator for a vehicle comprising:
an electric motor;
a cam having a variable radius perimeter, the cam being rotatably driveable by the electric motor;
a cam follower engageable with the cam and operably connected to a parking brake, whereby the cam follower travels along the perimeter of the cam as the cam is rotated causing the cam follower to move radially outward from a center of rotation and the parking brake to be applied.
2. The parking brake actuator of Claim 1, further comprising a cable having a first end and a second end, the first end operably connected to the cam follower and the second end operably connected to the parking brake.
3. The parking brake actuator of Claim 1, wherein the cam is operable between an initial position and an applied position.
4. The parking brake actuator of Claim 3, wherein the radius of the cam at the point of contact between the cam follower and the cam when the cam is in the initial position is less than the radius of the cam at the point of contact between the cam follower and the cam when the cam is in the applied position.
5. The parking brake actuator of Claim 3, wherein the parking brake is disengaged when the cam is in the initial position and is engaged when the cam is in the applied position.

6. The parking brake actuator of Claim 3, wherein the power requirement of the electric motor remains substantially constant as the cam is rotated from the initial position to the applied position.

7. The parking brake actuator of Claim 3, wherein the electric motor produces a torque that remains substantially constant as the cam is rotated from the initial position to the applied position.

8. The parking brake actuator of Claim 3, wherein the cam includes a positive stop for preventing the cam from being rotated past the initial position.

9. The parking brake of Claim 3, wherein the cam includes a pocket for preventing the cam from being rotated past the applied position.

10. The parking brake actuator of Claim 1, wherein the parking brake restricts movement of at least one wheel of the vehicle when the cam has rotated a full cycle.

11. The parking brake actuator of Claim 1, wherein the cam has a full rotational cycle of less than 360° .

12. The parking brake actuator of Claim 1, wherein the electric motor is reversible.

13. The parking brake actuator of Claim 1, wherein the cam follower is comprised of a bearing.

14. The parking brake actuator of Claim 1, wherein the cam follower has an outer periphery that engages the perimeter of the cam.

15. The parking brake actuator of Claim 1, further comprising a cable for operably connecting the cam follower to the parking brake.

16. The electrically actuated parking brake actuator of claim 15 further comprising:

a clevis for connecting the cam follower and the cable.

17. The parking brake actuator of Claim 1, further comprising a linkage mechanism for operably connecting the cam follower to the parking brake.

18. The parking brake actuator of Claim 1, wherein the electrical motor is operably connected to the cam by a gear train.

19. The parking brake actuator of claim 17, wherein the gear train includes at least one isolator.

20. The parking brake actuator of Claim 1, further comprising a sensor for detecting the rotational position of the cam.

21. A method for actuating an electric parking brake having a variable radius cam, comprising the steps of:

depressing a lock switch;

signaling a motor to actuate the variable radius cam;

moving a cam follower along the variable radius of the cam; and

actuating a brake as the roller follower connected to a cable moves linearly outward.